

PROJECT NUMBER: 1758
PROJECT TITLE: Tobacco Cell Wall Research
PROJECT LEADER: G. H. Bokelman
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I. ESTIMATION OF BLEND COMPOSITION FOR CIGARETTES SOLD IN JAPAN

(G. Bokelman, J. Stimler and General Analytical)

- A. Objective: Predict the blend compositions of Salem Lights (Japan), produced by RJR Nabisco, and Viceroy Milds (Japan), produced by B&W. Both cigarettes are manufactured in the U.S. for sale in Japan.
- B. Results: Since Islands and Salem Lights (Japan) are both produced by RJR Nabisco, we were interested in comparing these brands. It previously was reported (1) that, compared to the five brands produced by JTI which we have examined, Islands is notable for its low content of bright lamina and its extremely high content of Oriental leaf. The predicted blend compositions of Libera Milds, produced by JTI, Salem Lights (U.S.), Viceroy Milds (Japan) and Viceroy Kings (U.S.) also have been included in the table below (2).

Predicted Blend Compositions
(values expressed as percentage of total)

Component	Salem Lights (U.S.)	Salem Lights (Japan)	Islands (RJR for Japan)	Libera Milds (JTI)	Viceroy Milds (Japan)	Viceroy Kings (U.S.)
Bright Lamina	27	36	35	41	31	39
Burley Lamina	36	24	18	33	32	27
Oriental Leaf	19	16	24	8	10	12
Stem	19	24	23	18	28	22

Compared to Salem Lights (U.S.), Salem Lights (Japan) has more bright lamina and (combined bright and burley) stems, but less Oriental leaf and much less burley lamina. These are all "reasonable" changes to make considering the different trends in blend composition for the two markets. Compared to Islands, Salem Lights (Japan) has more burley lamina, less Oriental leaf, and about the same contents of bright lamina and (combined bright and burley) stems.

B&W made some interesting changes in Viceroy Milds (Japan) compared to its domestic brand of Viceroy Kings. The content of burley lamina was increased, but the bright lamina content was dropped significantly. The content of Oriental leaf was held about the same; however, the quantity of (combined bright and burley) stems was significantly increased. Libera Milds and Viceroy Milds have more burley lamina than any other brands on the Japanese market that we have examined. After them comes Marlboro Lights (Japan).

C. Plans: A series of cigarettes produced in Thailand have been submitted for chemical analyses. As soon as these analytical values are available, we will estimate their blend compositions.

D. References:

1. Bokelman, G. H. and J. O. Stimler, memo to C. L. Irving, "Blend Composition of Islands," March 17, 1988.
2. Bokelman, G. H. and J. O. Stimler, memo to C. L. Irving, "Blend Composition of Salem Lights (Japan) and Viceroy Milds (Japan)," April 20, 1988.

II. TOBACCO HEMICELLULOSE (S. Baldwin and N. Lewis)

A. Objective: Characterize hemicellulose isolated from green Coker 319 tobacco.

B. Results: As part of a collaborative contract research project, Dr. Norman Lewis at VPI&SU sent us a crude sample of hemicellulose that had been extracted from green Coker 319 tobacco grown in the greenhouse at Philip Morris. It was determined that the carbohydrate content of this sample is 85-90%. A neutral sugar analysis that was performed on this material yielded the following results: rhamnose, 3.1%; fucose, ~0%; arabinose, 5.9%; xylose, 15.7%; mannose, 5.3%; galactose, 16.8%; and glucose, 40.4%.

Not all of the crude starting sample could be dissolved in water. In addition to the insoluble material, gel permeation chromatography revealed the presence of no fewer than three components. It is believed that at least one of these components is a xyloglucan polysaccharide.

C. Plans: The individual components within this sample of tobacco hemicellulose will be isolated and more completely characterized.

III. APPLICATION OF CMC TO CIGARETTE WRAPPER (S. Baldwin and B. Goodman)

A. Objective: Examine the effect upon sidestream of applying sodium carboxymethylcellulose (CMC) to cigarette wrapper.

B. Results: A low viscosity CMC was applied to cigarette paper which had a basis weight of 25 g/m². The CMC was applied in the Semiworks by size press application at levels of approximately 0.5%, 1.0%, 1.5% and 2.0%.

C. Plans: Cigarettes will be prepared from these treated papers in order to evaluate reduction in sidestream smoke.